



City of San Diego Long-Term Resource Management Options Strategic Plan (LRMOSP)



Resource Management Advisory Committee

Fourth Meeting

April 30, 2008





Agenda

- I. Welcome/Introductions
Approval of Feb 20th Meeting
Summary
- II. Recap of Solid Waste Facilities Tour-
March 26, 2008
- III. Review Screening Matrices
- IV. Next Meeting (June 18, 2008)





Solid Waste Facilities Tour



Allan Company Material Recovery Facility





Solid Waste Facilities Tour

Miramar Nursery





Solid Waste Facilities Tour



*Miramar
Greenery*



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Solid Waste Facilities Tour

Miramar Landfill





Solid Waste Facilities Tour





End Goal

- Planning Horizon -YEAR 2030
- City of San Diego Annual Landfill Disposal Needs:

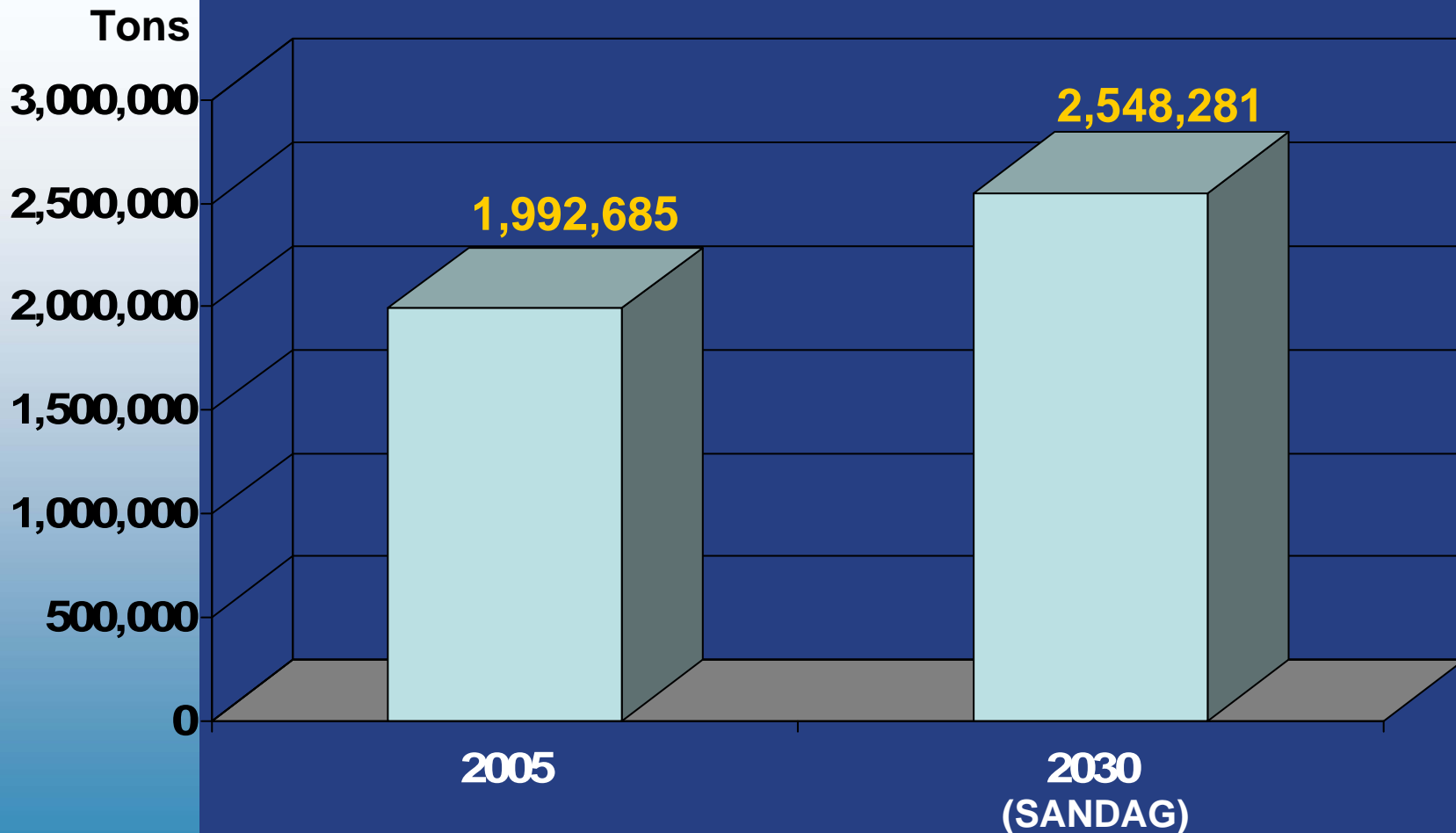
2005 - 2.0 million tons

2030 - 2.5 million tons



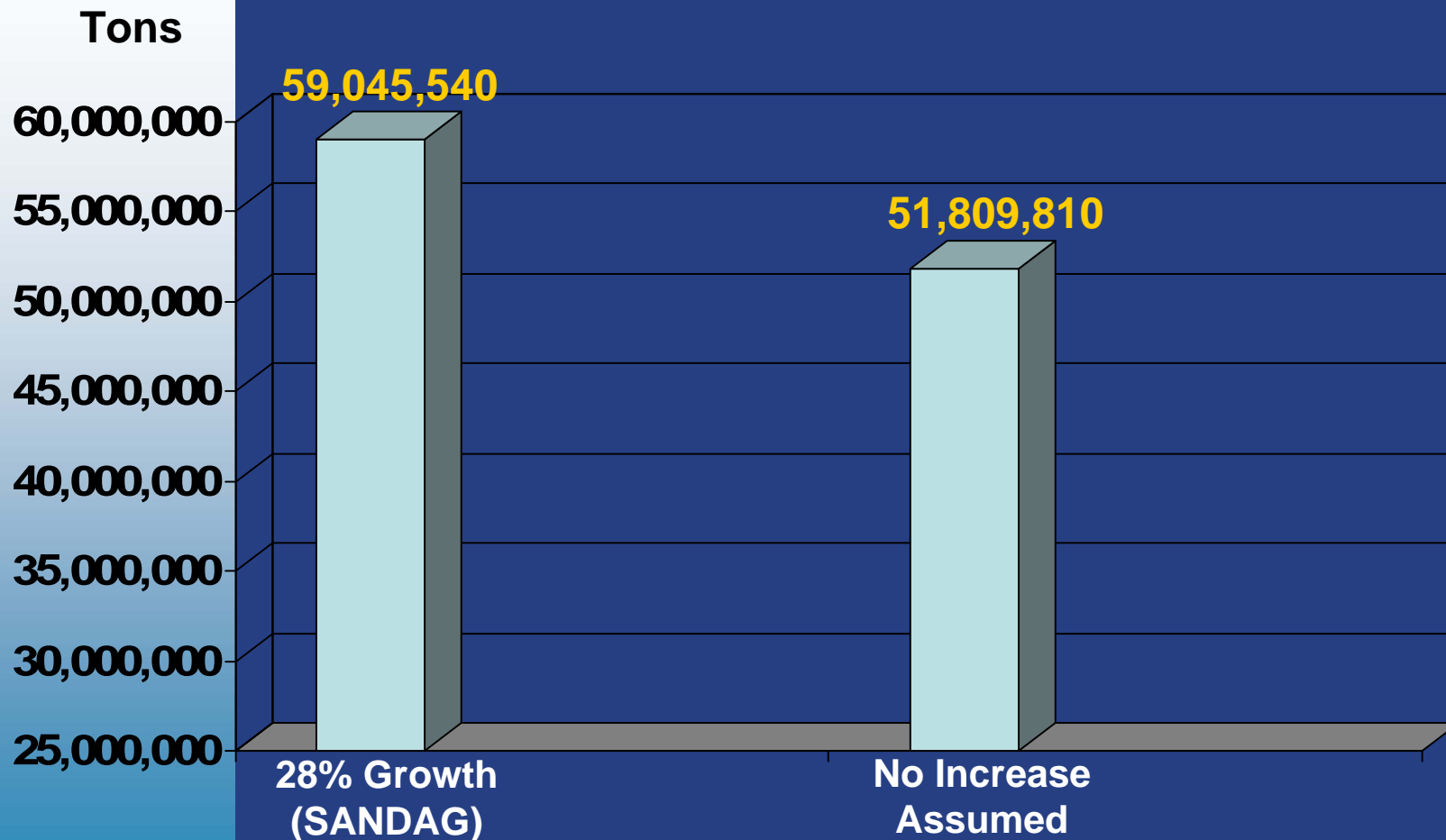


Material Disposed by the City Annually is Substantial and is Projected to Increase



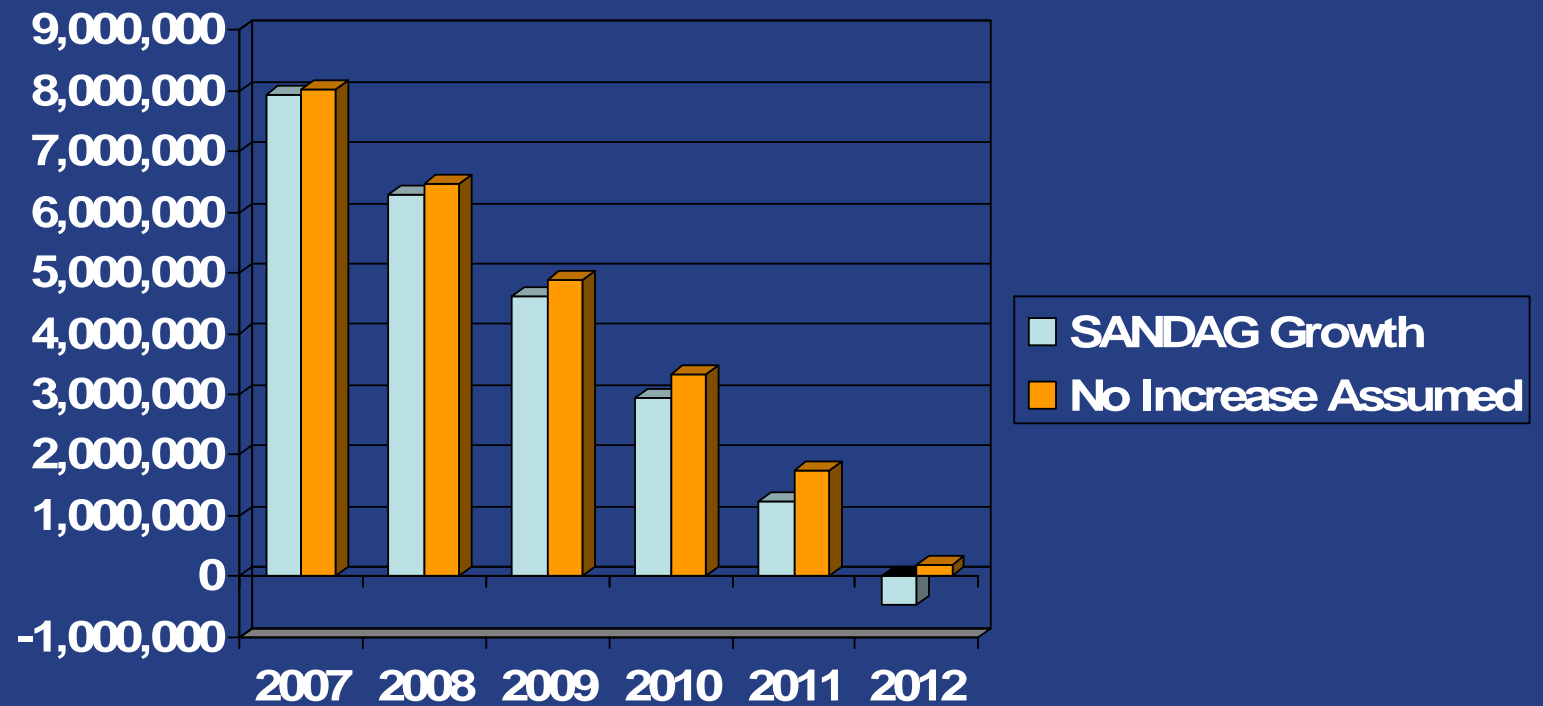


Over Next 25 Years - Cumulative Volume Generated by the City Creates a Tremendous Demand





City's Miramar Landfill Reaches Permitted Capacity in 2012





Where will our trash go?





Screening Matrices

- (6) Alternative Disposal
- (5) Landfill Optimization Techniques
- (4) Waste to Energy
- (3) Conversion Technologies
- (2) Zero Waste Infrastructure
- (1) Zero Waste Programs





Refined Screening Criteria

High – Medium – Low Feasibility

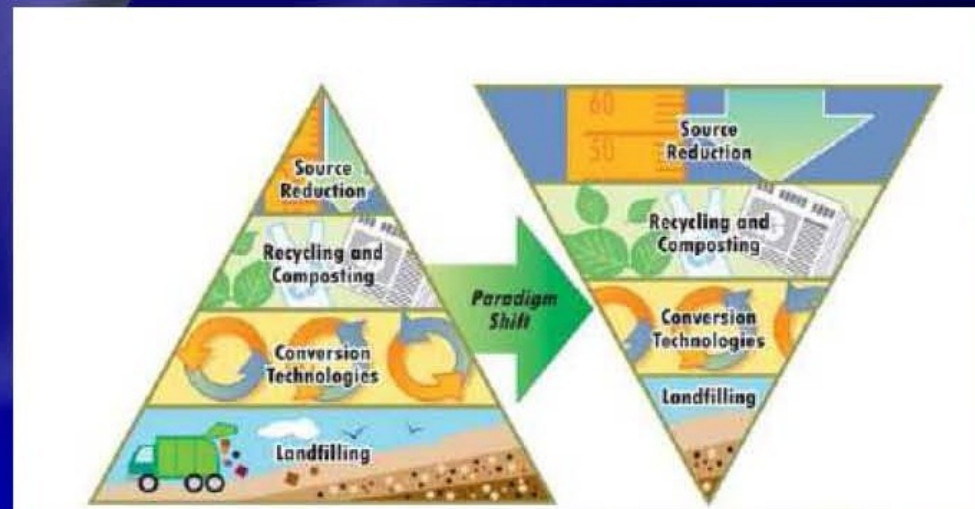
- Financial Viability
- Technical Viability
- Regional Viability
- Environmental Viability
- Capacity Optimization
- Sustainability





(6) Alternative Landfill Disposal Options

Paradigm Shift



Christine Arbogast, PE – BAS
Bob Hilton – HFH
Lisa Woods – City of San Diego





Landfill Disposal Options

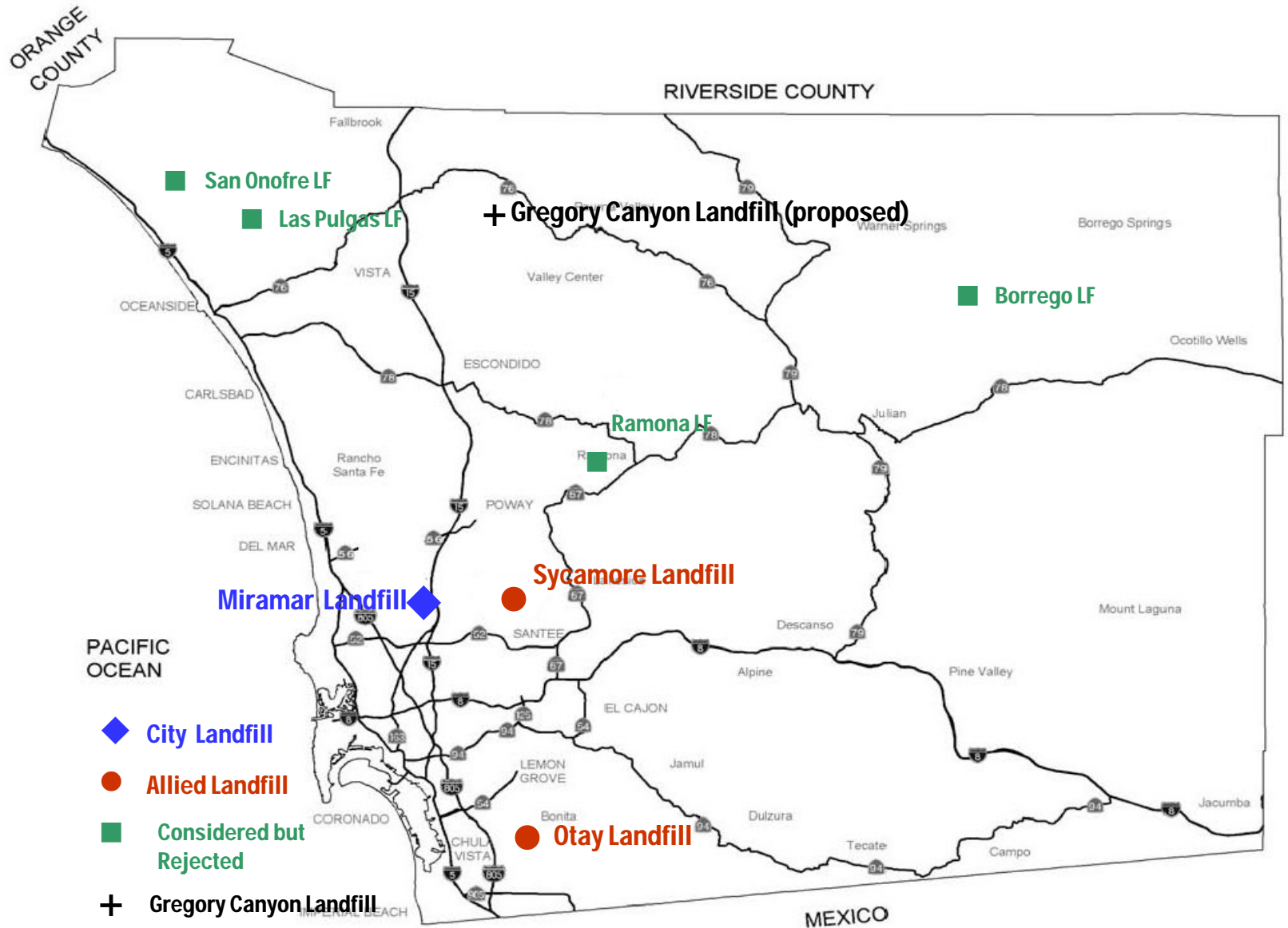
25 Landfills Evaluated

- 8 In-County
- 17 Out-of-County



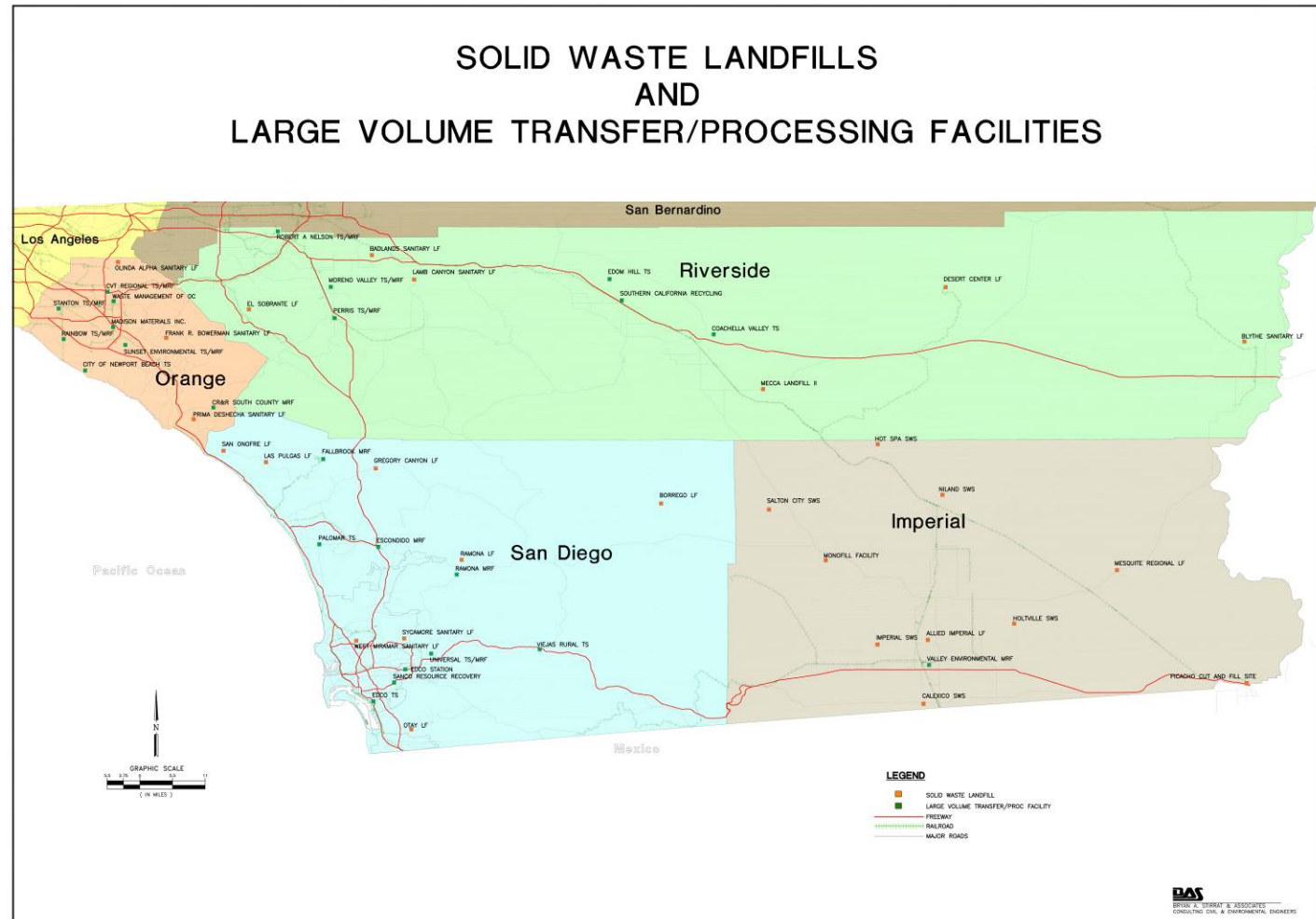


In-County Disposal Sites



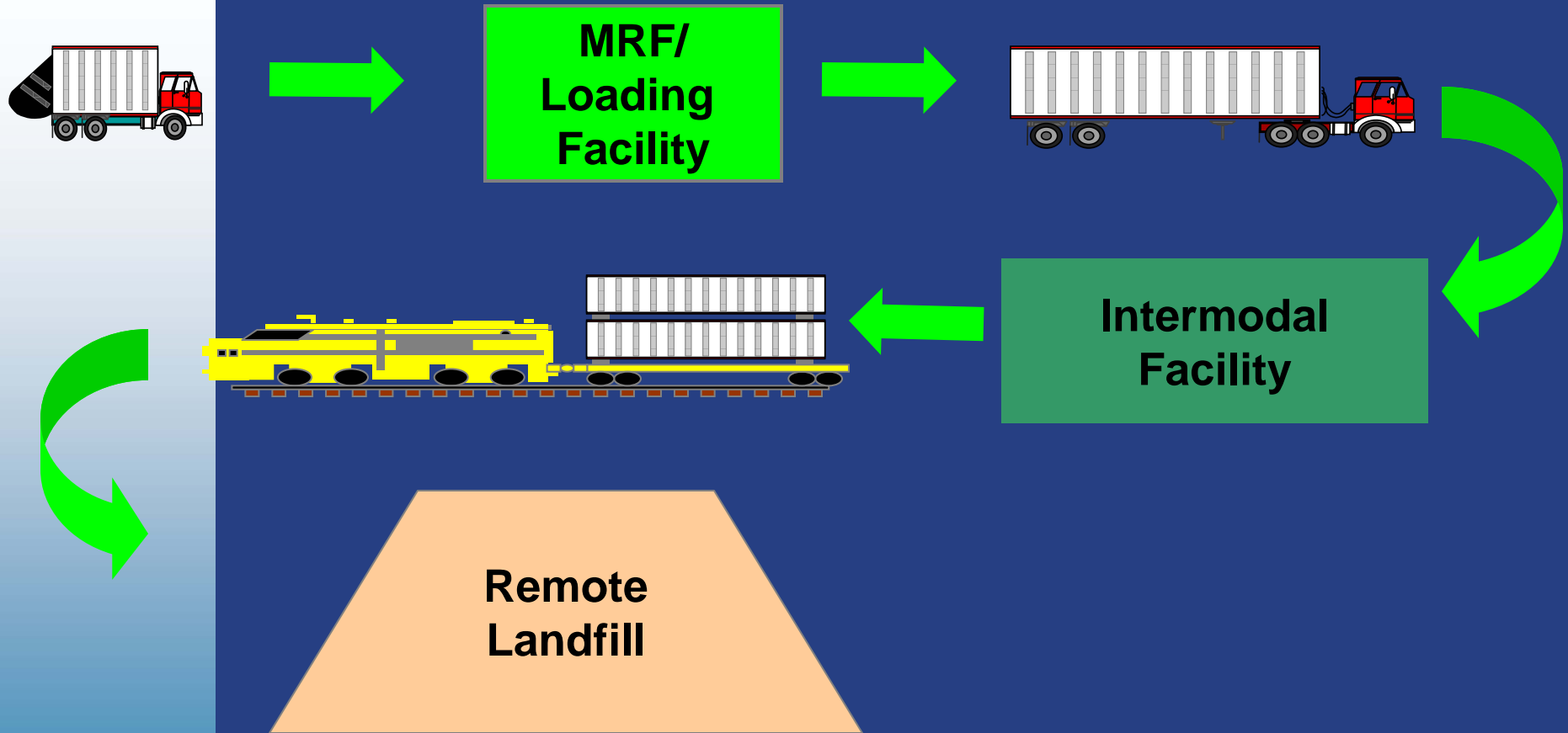


Out-of-County Disposal Options





Waste-by-Rail System Overview





Puente Hills Intermodal Facility



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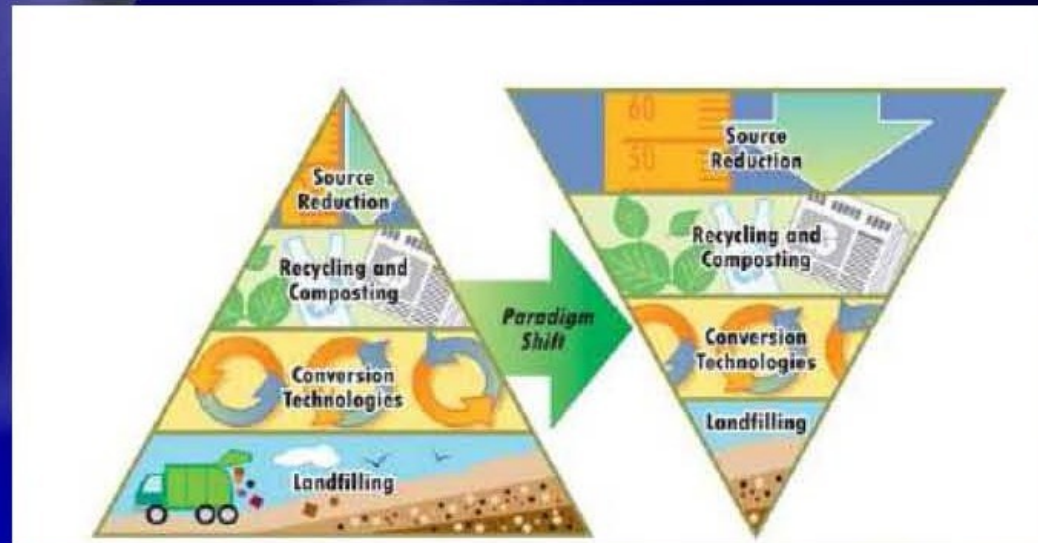
Rail Haul





(5) Landfill Optimization Techniques

Paradigm Shift



Sonia Nasser, PE , BAS
Sylvia Castillo, PE, City of San Diego





1. Compaction – Soil Surcharge

- Soil Surcharge
- Compact refuse cell, extend airspace





2. Alternative Daily Cover



Tarp-o-matic





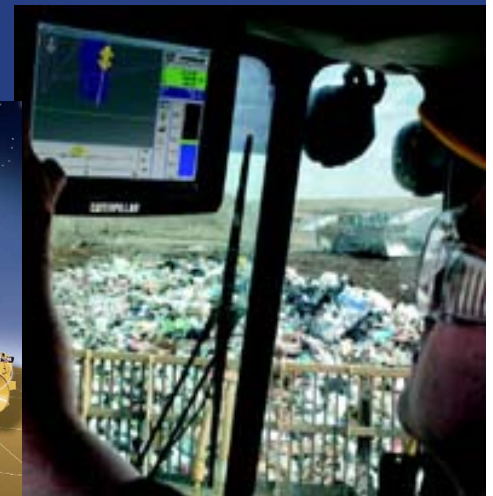
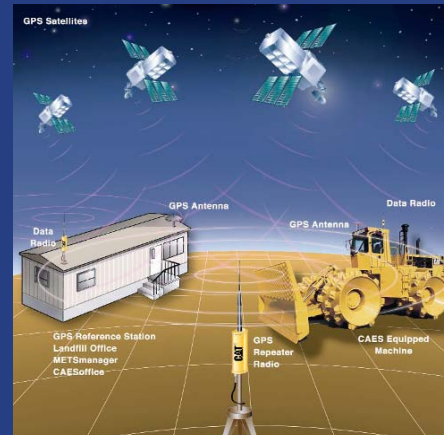
3. Landfill Reclamation





4. Compaction – Computer Aided Earth Moving System (CAES)

- Cell Capacity Extended
- Less Cover Material
- Reduced fuel use- less guesswork on passes over trash





5. Leachate Recirculation





6. BioReactor



Yolo County Landfill – California





7. Steam Injection Miramar Landfill Pilot Study



Photo: STI Engineering





(4) Waste to Energy

Paradigm Shift



Chip Clements, PE,
Clements Environmental





- Biomass Power Plant: Madera
- Anaerobic Digester: DRANCO
(Belgium) and Valorga Facility (Germany)
- Gasification and
Pyrolysis: Thermoselect (Chiba,
Japan)
- Waste to Energy: SERRF (Long
Beach, CA)
- Lee County,
Florida
-





(3) Conversion Technologies

Paradigm Shift



Chip Clements, PE,
Clements Environmental





1. Gasification and Pyrolysis



**Thermoselect Facility,
Chiba, Japan**



2. Anaerobic Digestion



DRANCO (Brecht, Belgium)



2. Anaerobic Digestion



**Valorga Facility
Freiberg, Germany**



3. Hydrolysis





4. Mechanical Processing - Autoclave





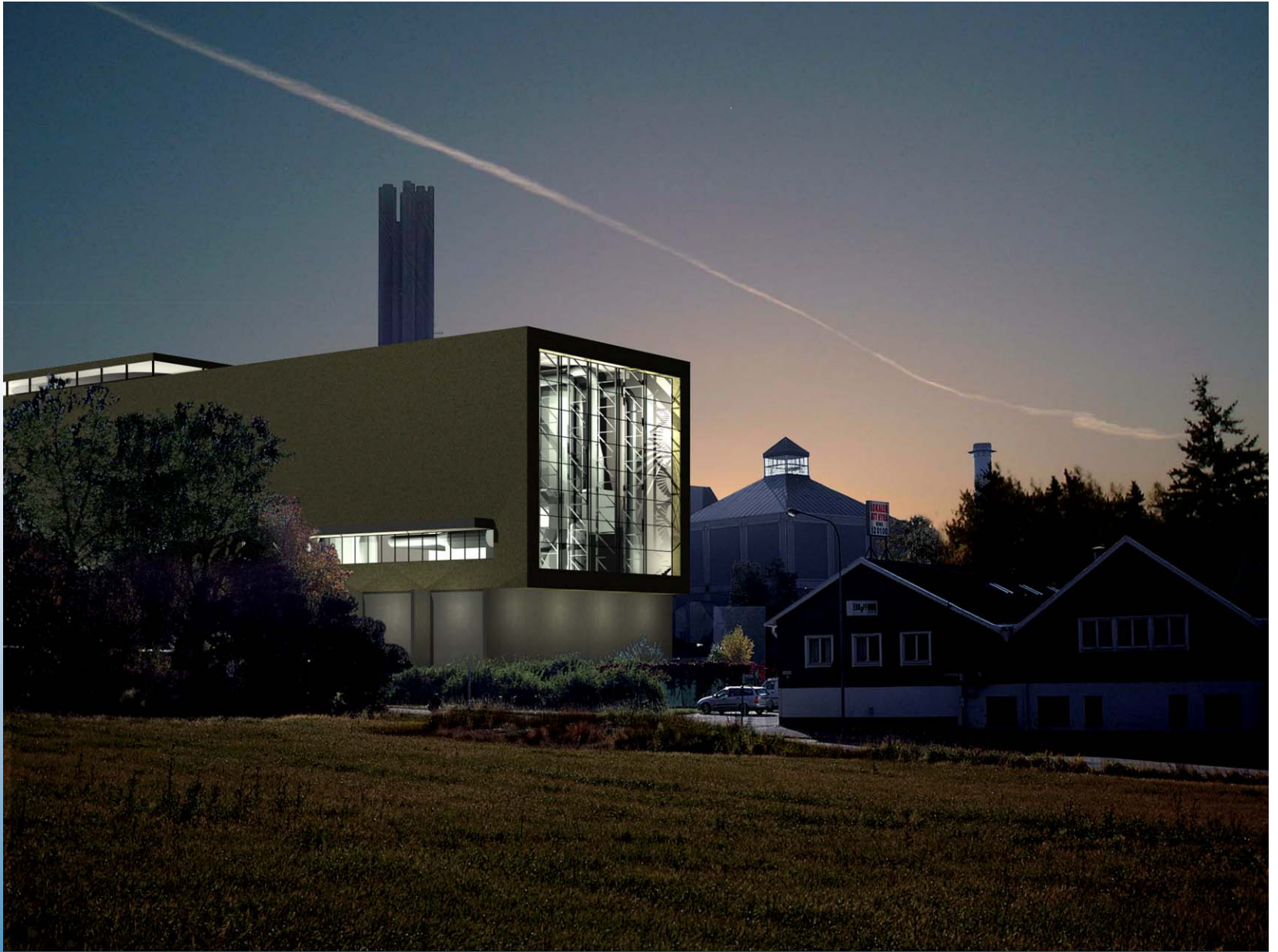
5. Chemical Processing





6. MSW Composting













Biomass Power Plant (Madera)





ENTRY AND WEIGH SCALES



GAS PRESSURE EQUALIZATION TANK, DIGESTER BEHIND





DIGESTER RESIDUE FROM DEWATERING



FORCED AIR SYSTEM – AEROBIC MATURATION





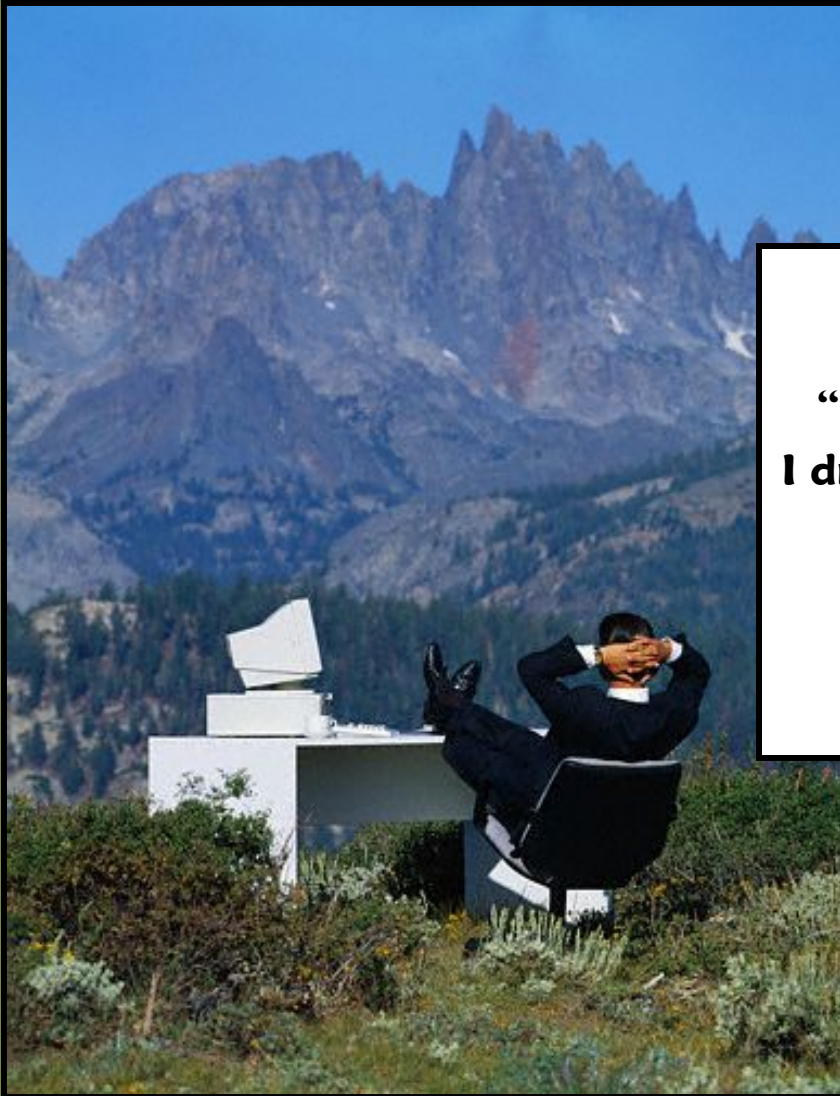
Changing World Technologies

Carthage, MO



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**“Some people see things as they are and say why?
I dream of things that never were and say why not?”**
- *Robert Kennedy*



(2) Zero Waste Infrastructure



Chip Clements, PE,
Clements Environmental

Christine Arbogast, PE,
Bryan A. Stirrat & Associates





Zero Waste Infrastructure Examples





SAFE Center (Solvents, Automotives, Flammables & Electronics)



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Loading Transfer Truck





Commercial MRF



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Transfer Station II (Oxnard)





Curbside MRF



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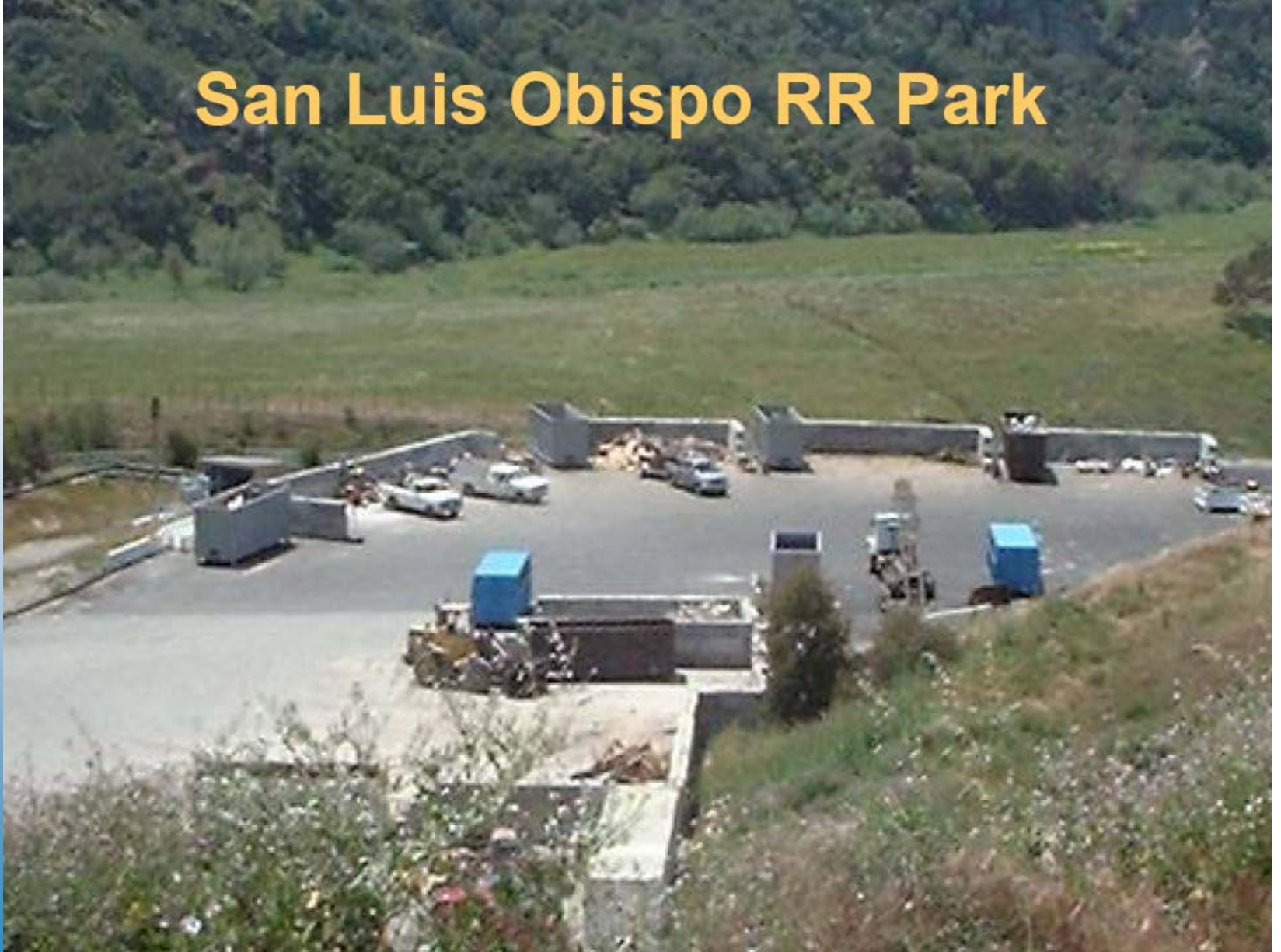
Recovery Parks

- Industrial: Provide campus for symbiotic zero waste facilities (recycling, power, manufacturing)
- Public Service: Provide convenient drop off for local residents (usually free), ReUse Store





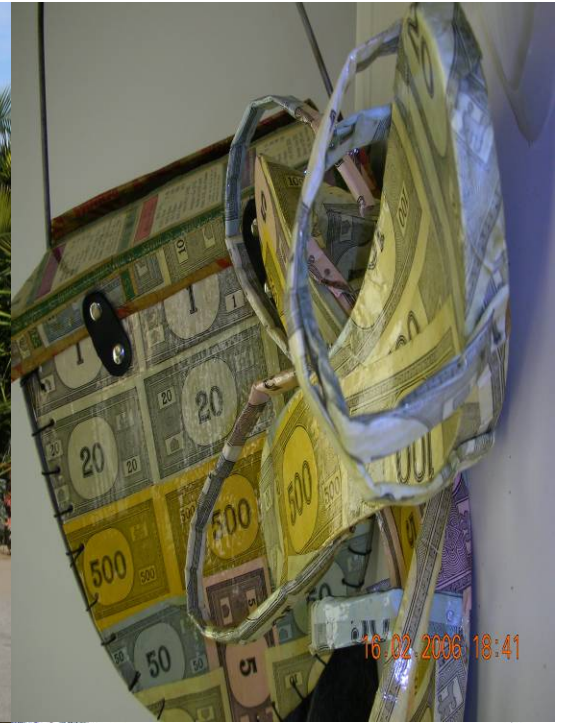
San Luis Obispo RR Park





Monterey Resource Recovery Park





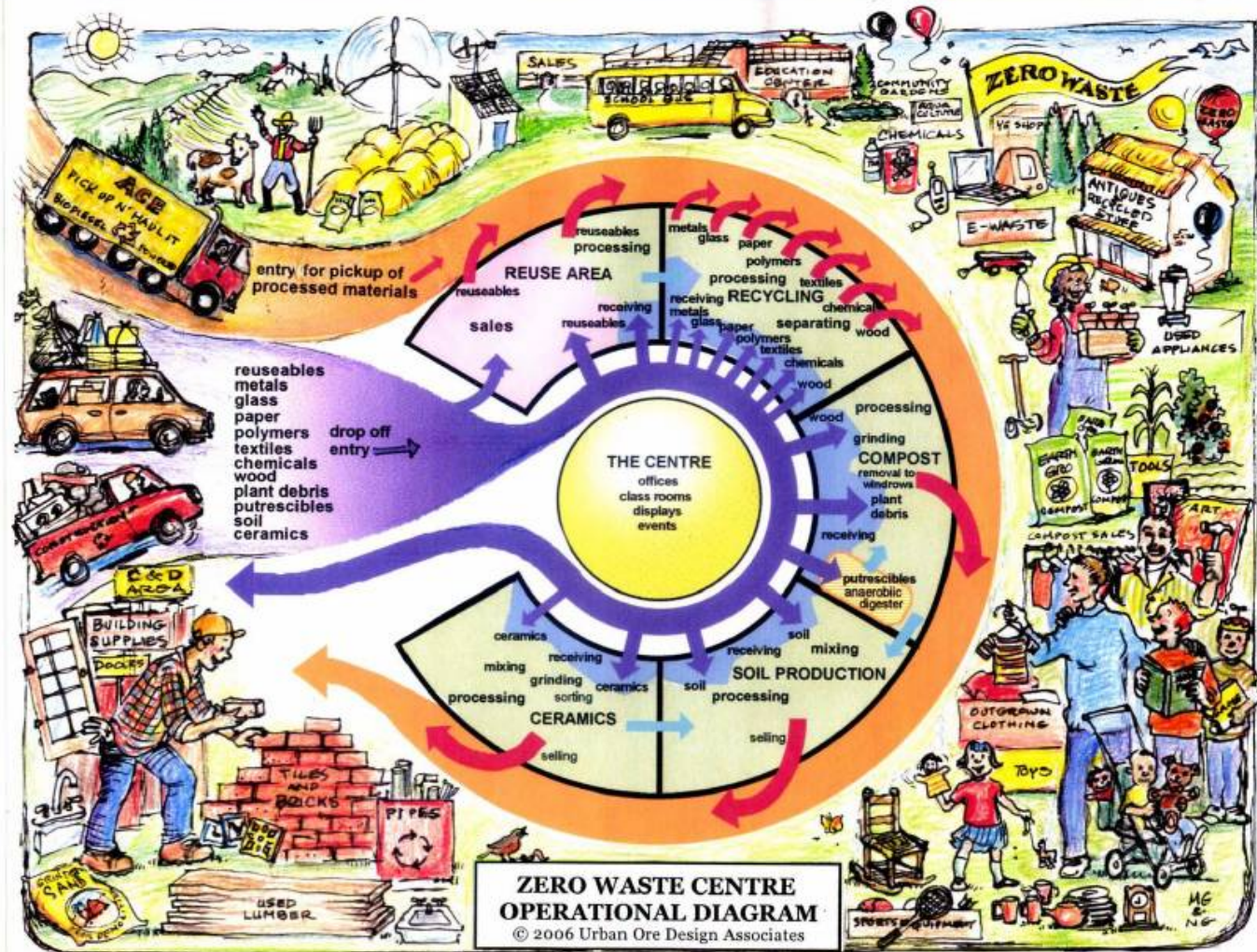


Urban Ore RR Park, Berkeley CA





Resource Recovery Park

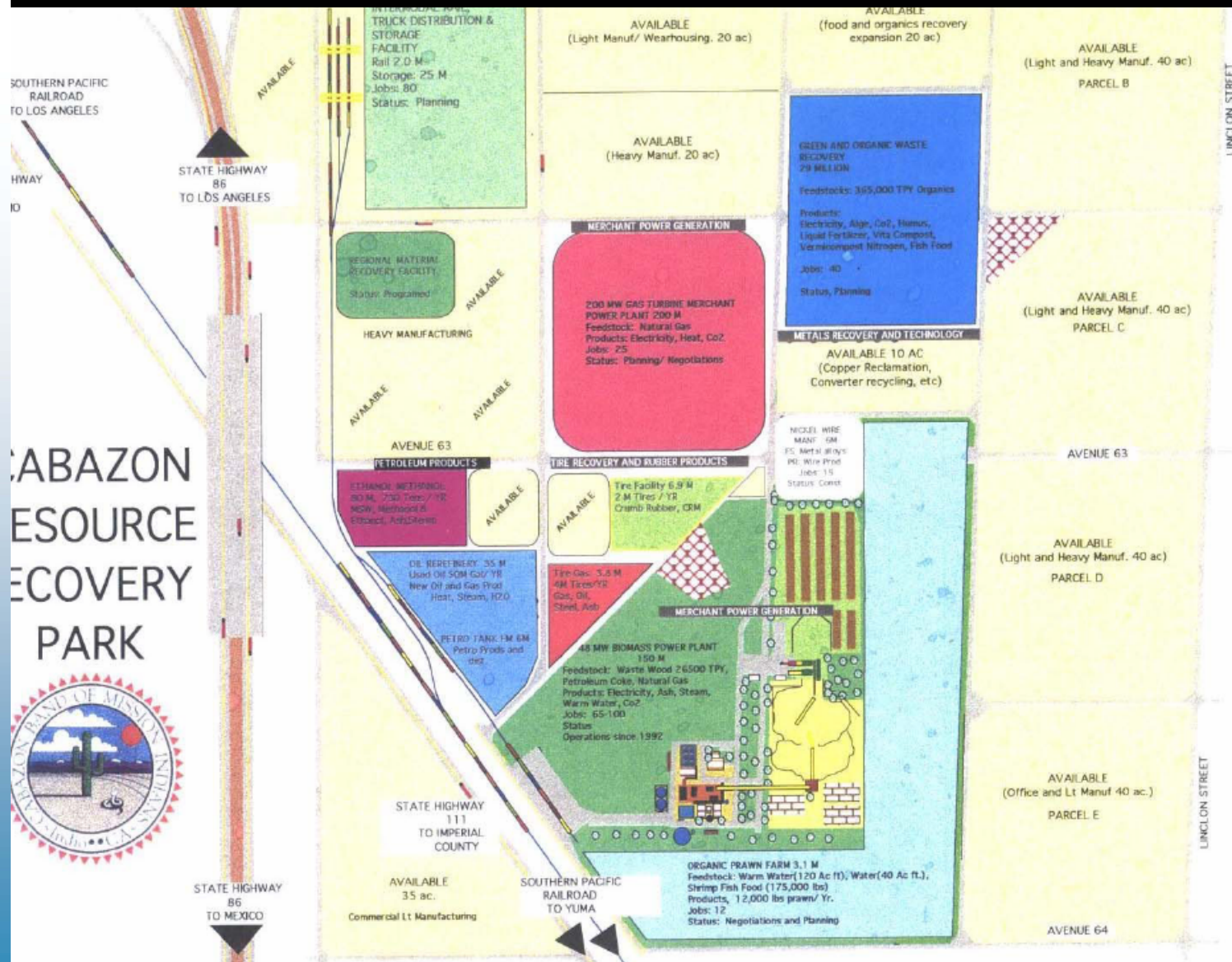


**ZERO WASTE CENTRE
OPERATIONAL DIAGRAM**
© 2006 Urban Ore Design Associates



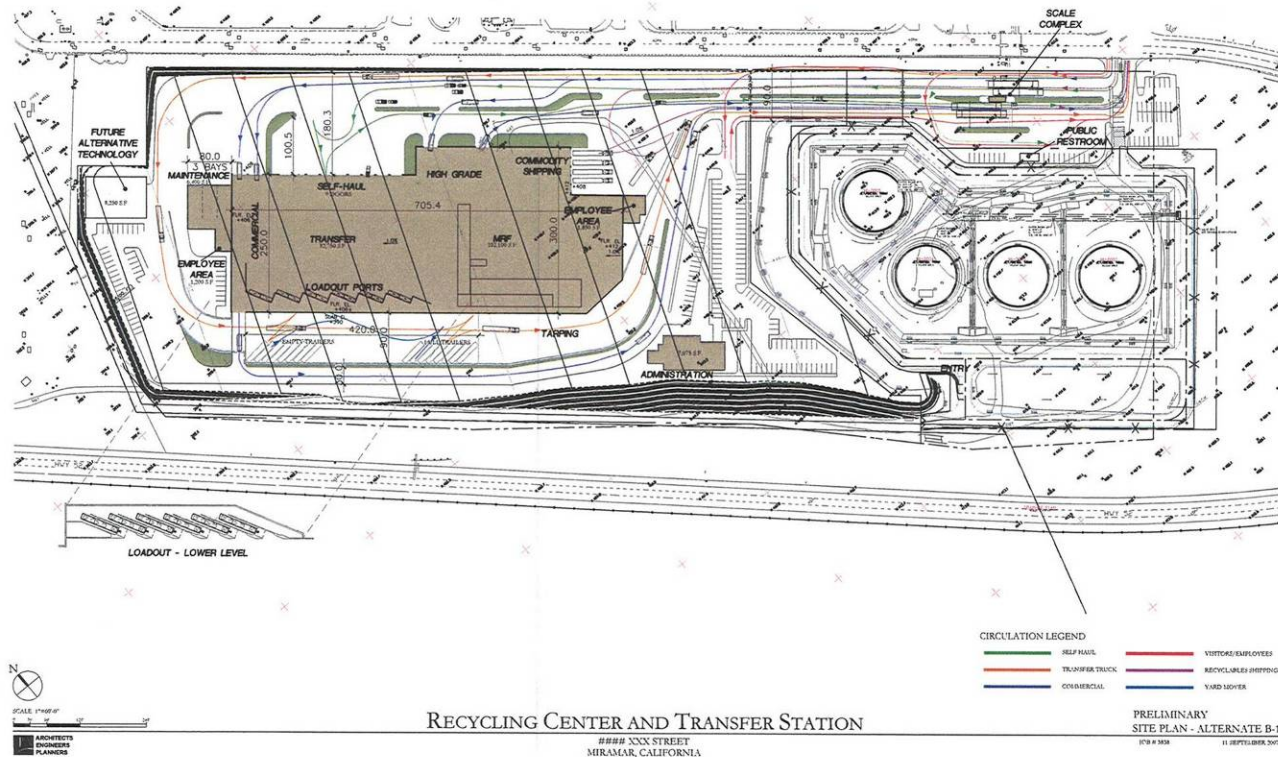


Cabazon Resource Recovery Park





Miramar Recycling & Transfer Station Feasibility Study





C&D Processing



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Sorting C&D



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C&D Products





Greenwaste Chip & Grind





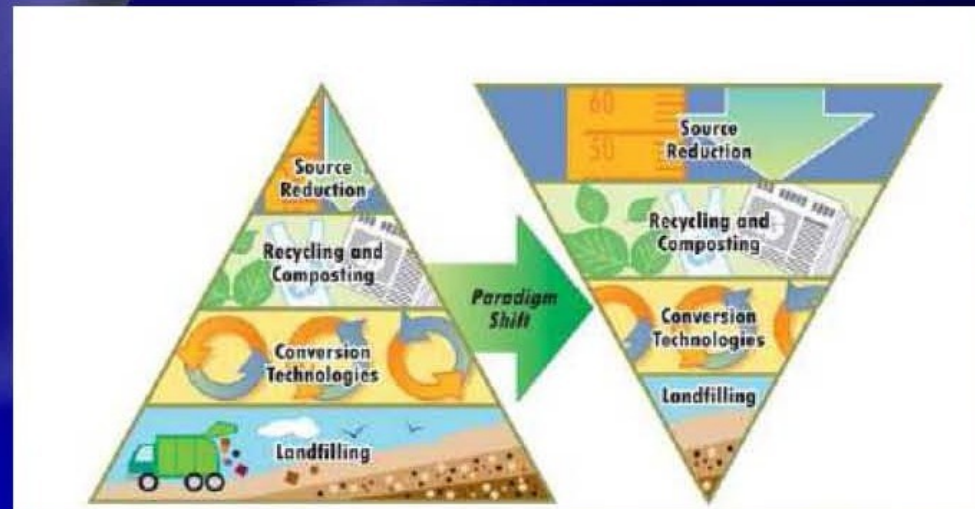
Composting





(1) Zero Waste Programs

Paradigm Shift



Chip Clements, P. E. - Clements Environmental
Stephen Grealy – City of San Diego/ESD



